



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,543	04/19/2001	Stig Sarkimukka	2466-63	7576
23:17	7590	01/02/2004	EXAMINER	
NIXON & VANDERHYE, PC 1100 N GLEBE ROAD 8TH FLOOR ARLINGTON, VA 22201-4714			ARTMAN, THOMAS R	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 01/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/837,543

Applicant(s)

SARKIMUKKA ET AL.

Examiner

Thomas R Artman

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments, filed November 6<sup>th</sup>, 2003, with respect to the rejection(s) of claim(s) 1 and 9 under Anderson in view of Roberts have been fully considered and are persuasive. Specifically, none of the previously-cited prior art disclose the practice of switching data signals from one wavelength to another. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made over Chang and in view of Roberts.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (US 6,111,673) and in view of Roberts (US 5,949,560).

Regarding claims 1 and 9, Chang discloses an optical communication link and the method of transmission (col.4, lines 41-62), including:

1) a transmitting side and receiving side with high priority information being transmitted over a fiber link in a plurality of wavelength bands,

2) each band has different transmission characteristics that vary with time, such as polarization mode dispersion (PMD),

3) a first switch for transmitting high-priority information in a number of wavelength bands smaller than the total number of wavelength bands (col.4, lines 53-55), and

4) a controller connected to the first switch for selecting at each instant a wavelength band for transmitting the high priority information (switching to a “preferred path,” col.4, lines 41-45).

Chang does not specifically disclose the method of switching in order to provide a sufficient total quality of the transmission. Chang teaches the routing of high priority information to a preferred path (different wavelength band, fiber link, or combination of both, col.4, lines 49-57).

Roberts teaches the practice of switching information from a path that has poor signal quality (PMD levels over a determined threshold) to one that has better quality in col.4, lines 28-45, specifically lines 42-45. Roberts’ method selects a preferred path for transmitted information based upon signal quality such that the quality of the transmitted information is improved by switching to a path with a better signal quality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Chang to choose a preferred path based upon improved signal quality as taught by Roberts such that a sufficient total quality of the transmission can be obtained.

With respect to claims 2 and 10, Roberts specifically teaches a quality determination device placed at the receiving end (col.4, lines 28-31), where the quality data is sent to the switch controller for determining the selection of the appropriate paths (lines 42-45).

With respect to claims 3 and 11, Chang specifically discloses that each end (node) of a transmission link has cross-connects to perform the necessary switching of the transmitted information (col.7, line 53, to col.8, line 3), where each switch has the necessary number of input and output ports for each band that the transmission link uses.

Further regarding claim 11, Chang's information originates as electrical signals (electrical layer 110). Additionally, it is standard in the art. Optical information signals begin and end at electro-optic devices in order to communicate with the standard all-electrical computer technology.

With respect to claims 4 and 12, neither Chang nor Roberts teach switching in the electrical domain.

However, electrical cross-connects are well known in the art and used in electrical telecommunication systems. One having ordinary skill in the art would contend that using electrical cross-connects to interface with an optical network provides a simple, cost-effective upgrade of existing communication systems.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Chang to perform the switching in the electrical domain. Though

Art Unit: 2882

it is not as fast as optical switching, switching in the electrical domain using existing electrical switches provides cost-effective upgrades for current communication networks.

With respect to claims 5 and 13, Chang performs the switching in the optical domain (optical layer 120).

With respect to claims 6 and 14, Chang's switch (Fig.4) is electro-optic and has selectable (tunable) delays, where the signals are then transmitted out of the switch.

With respect to claim 7, Chang teaches that the paths not used for the high priority signals are utilized for lower priority signals.

With respect to claims 8 and 15, Chang does not disclose the use of PMD compensators.

Roberts teaches the use of adding PMD compensators arranged for each channel and connected at one end of a fiber link (col.10, lines 35-39) in order to compensate for the PMD in the signal. As is standard in the art, PMD compensators are used to improve the quality of a transmitted signal by essentially reversing the PMD experienced by a transmitted signal.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Chang to use a PMD compensator such that the quality of transmission is improved.

Art Unit: 2882

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Roberts (US 5,969,840) teaches the control of optical signal transmission based upon bit error rates and giving preference to high priority data. Masuda (US 5,023,863) teaches switches with tunable electro-optic transmission.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas R Artman whose telephone number is (703) 305-0203. The examiner can normally be reached on 9am - 6:30pm Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (703) 308-4858. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.



DAVID V. SMITH  
PRIMARY EXAMINER

Thomas R. Artman  
Patent Examiner  
December 16, 2003

